

7.12-Dimethylbenz[a]anthracene
(DMBA)

- 1938 Newman synthesized DMBA from toluic acid. [1]
- 1939 Chernova synthesized DMBA from 9-methyl-1,2-benzanthracen-10-one by the Reformatsky reaction. [2]
- 1956 Klein demonstrated that as little as 1 microgram of DMBA may act as a tumor initiator. [3]
- 1958 Della Porta *et al.* showed that repeated intratracheal instillations of DMBA in a colloidal gelatin suspension induced tumors of the lung and bronchi in Syrian Golden hamsters. [4]
- 1959 Salley and Kreshover investigated the susceptibility of hamster pouches to DMBA and BaP, indicating that relatively high doses are needed for carcinomas to develop in that area. [5]
- 1962 Wynder and Hoffmann demonstrated tumor-promoting activity of tobacco smoke by using 300 micrograms of DMBA as the single initiator, followed by applications 3 times weekly of tobacco smoke condensate in as low a concentration as 10%. [6]
- 1964 Bock *et al.* showed that some tobacco extracts are carcinogenic to mouse skin and that an acetone-benzene extract acts as a tumor promotor on mouse skin after initiation with 125 micrograms of DMBA per mouse. The amounts of extract correspond to half a cigarette a day and sufficed to demonstrate tumor-promoting activity. [7]

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- 1968 Wheatley reported studies in which the yield of mammary tumors in rats, in response to treatment with 7,12-DMBA, is decreased by treatment of animals with various polycyclic compounds including 3-MCA. [8]
- 1971 Van Duuren *et al.* treated a group of 60 ICR/Ha Swiss mice one time only with 50 micrograms DMBA followed by a repeated application of cigarette smoke condensate (40 mg. in 0.1 ml. acetone five times weekly), 14 animals developed squamous carcinoma of the skin. The experiment was terminated after 573 days. In other experiments of the same series, CSC alone, with the same dosage, resulted in only four animals with skin cancer. The dosage of DMBA, by itself, did not result in any skin cancers. (Emphasis added). [9]
- 1976 Bock *et al.*, in testing tobacco smoke, pretreated mouse skin with 125 micrograms of DMBA and found that the tumor-promoting activity of tobacco extracts requires the simultaneous application of two agents, one of large molecular weight, insoluble in organic solvents and the other of small molecular weight, soluble in organic solvents. They suggest that the agent of small molecular weight could be nicotine. [10]
- 1976 Dipple, in his article on polynuclear aromatic hydrocarbons listed 7,12-DMBA as having high biological activity. [11]
- 1977 The Royal College of Physicians characterizes polycyclic aromatic hydrocarbons as one of the two (along with *N*-nitroso compounds) chief initiators of cancer in tobacco smoke. [12]
- 1979 DMBA not mentioned as a carcinogenic PAH in cigarette smoke. [13]

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1979- In two separate studies, Rinkus et al. (1979) and
1980 Bartsch et al. (1980), found several cigarette smoke
constituents to be mutagenic. Among those were
DMBA. [14]

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